

(No Model.)

A. WHITTALL.

TENSION REGULATING DEVICE FOR BOBBIN FRAMES.

No. 418,432.

Patented Dec. 31, 1889.

FIG. 2.

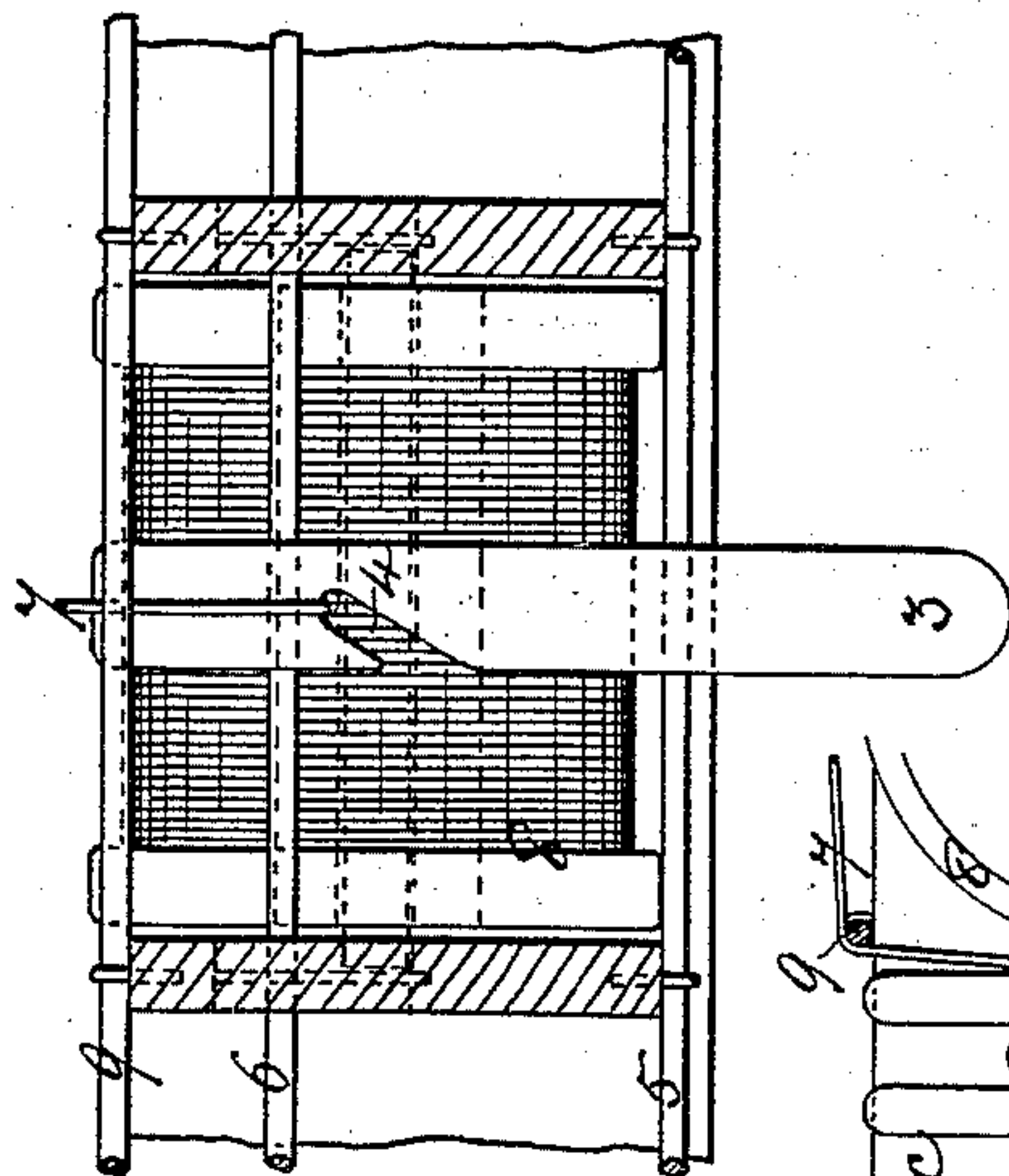


FIG. 1.

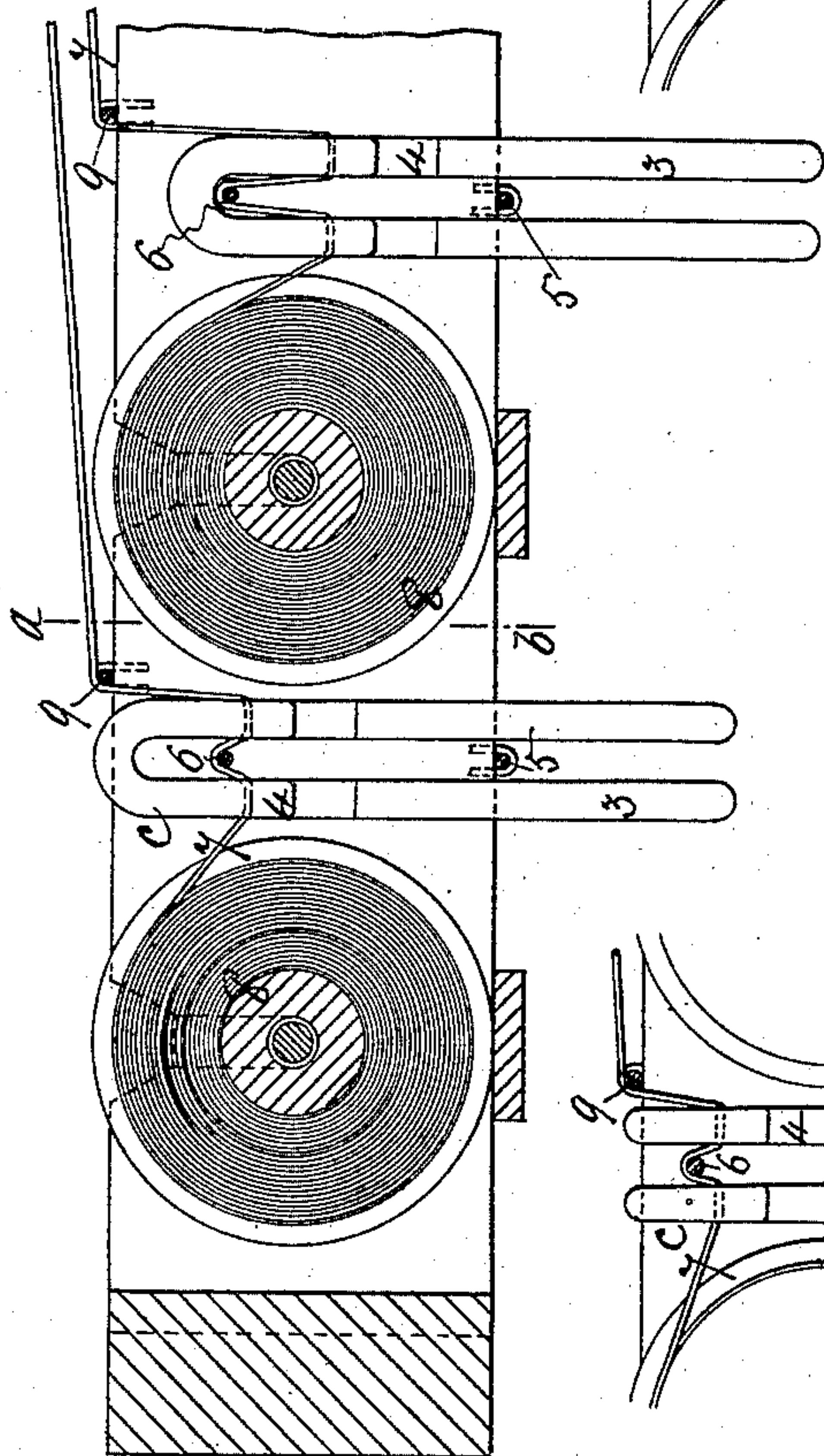


FIG. 4.

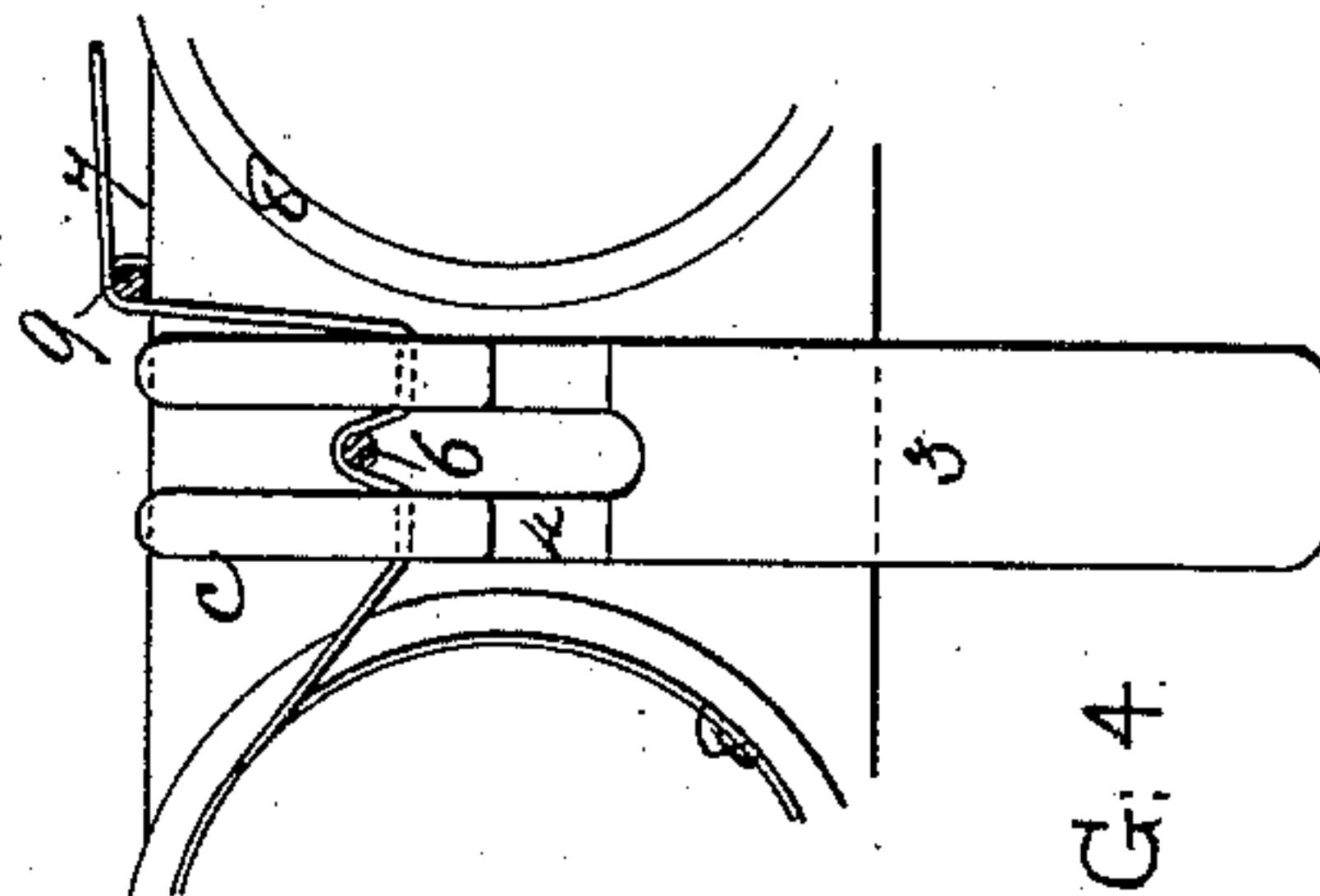
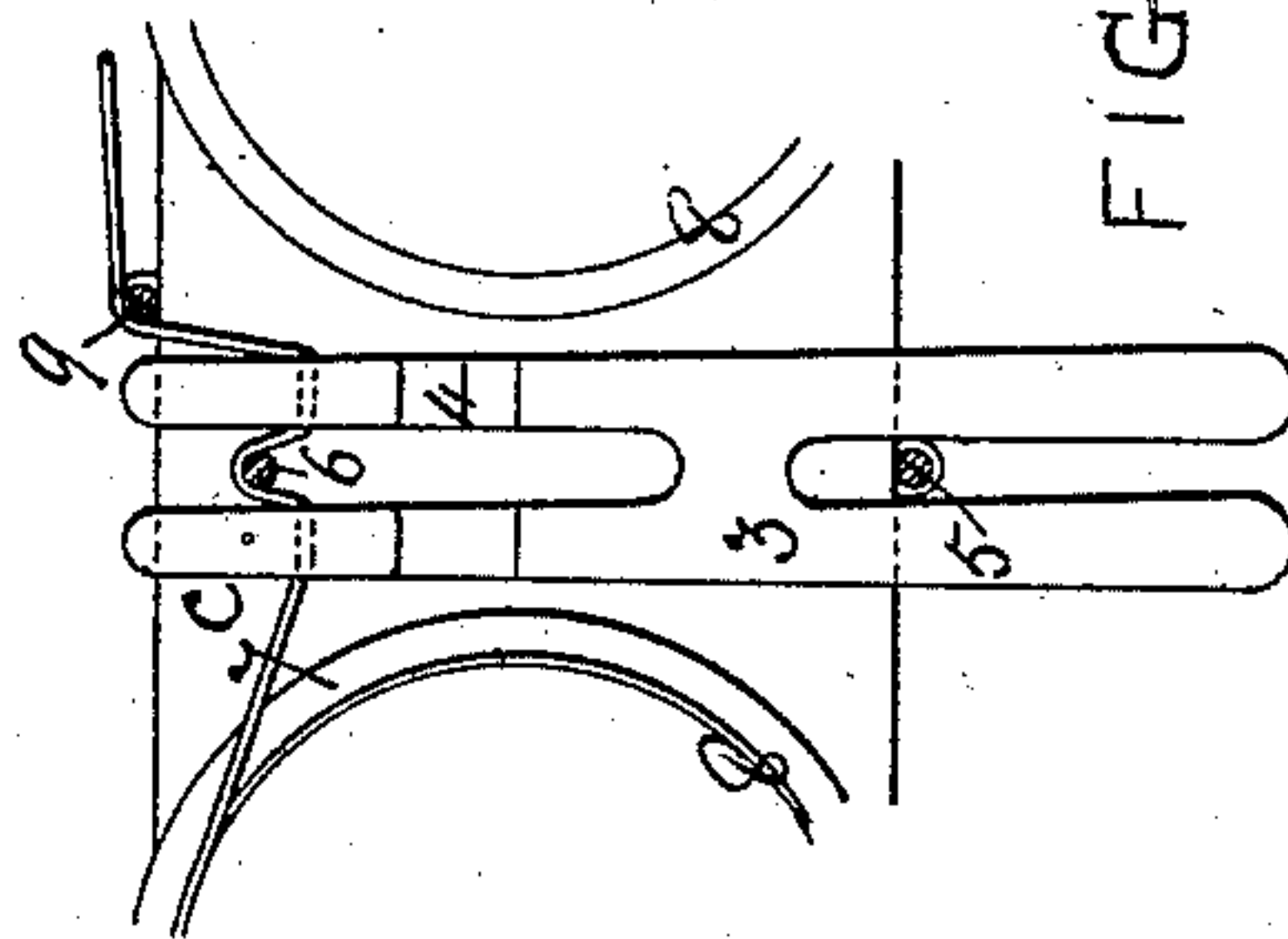


FIG. 3.



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UNITED STATES PATENT OFFICE.

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TENSION-REGULATING DEVICE FOR BOBBIN-FRAMES.

SPECIFICATION forming part of Letters Patent No. 418,432, dated December 31, 1889.

Application filed April 27, 1889. Serial No. 308,892. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR WHITTALL, manufacturer, a subject of the Queen of Great Britain and Ireland, residing at Kidderminster, Worcestershire, England, have invented a certain Improved Tension-Regulating Device for Bobbin-Frames of Looms for Weaving, of which the following is a specification.

This invention relates to an improved tension-regulating device for bobbin-frames used in looms for weaving carpets and other fabrics.

The especial object of such devices is to keep the yarn in continuous tension sufficient to prevent waste thereof by its being drawn too freely into the fabric.

The tension has been hitherto imparted, in some instances, by a weight having but a single frictional surface bearing upon the yarn and being supported thereby between the bobbin and a wire over which the yarn is passed, and from which it passes to the loom, or between parallel wires over which the yarn is passed, and from the second of which it passes to the loom; but in such arrangements it is not practically possible to apply a weight sufficient to keep the yarn stretched to its full extent, so as to avoid all puckering and waste of the yarn in the fabric, and so as to allow of only the quantity of yarn which can be usefully employed being drawn into the fabric, as any materially-greater weight than that usually applied (which is quite insufficient to keep the yarn thus stretched) would cause the bobbin to run down.

The present invention consists, essentially, of a duplex tension-weight formed with two separate frictional surfaces adapted to rest on the yarn, one on each side of an intermediate frictional surface supported by the bobbin-frame and adapted to support the yarn, and by which means the yarn is doubled over such intermediary part and is weighed down equally on each side thereof, thus affording a triple frictional resistance to the passage of the yarn of such a nature as will be effective in allowing the weight used to be sufficient to attain the aforesaid object without causing the bobbin to run down.

On the accompanying drawings, Figure 1 represents a sectional elevation of part of a

bobbin-frame provided with the present improvements. Fig. 2 represents a transverse section of the parts shown in Fig. 1 through the line *ab*. Figs. 3 and 4 represent modified forms of the tension-weight.

3 represents the duplex weight, which I prefer to construct as a bifurcated formation, (*vide* Fig. 1,) with the opposite limbs slotted, as at 4, (*vide* Fig. 2,) thus forming the two said separate frictional surfaces adapted to rest on the yarn. The formation represented permits of the weight being most readily applied to and removed from the yarn, and is also instrumental in attaining other important advantages—that is to say, in permitting the weight to be localized between adjacent bobbins and prevented from being swung into contact therewith by the jerking of the yarn, caused by the operation of the loom, by means of a transverse wire 5, and in preventing the weight from falling onto the yarn in the frame next below, should its supporting-yarn break, by means of the wire 6, which constitutes the said intermediate frictional surface adapted to support the yarn between the said frictional surfaces of the weight. The yarn 7 is passed from the bobbin 8 through the opposite slots 4 of the weight, which is then lowered onto the wire 6, which catches the yarn, offering a frictional resistance to the passage thereof in addition to the separate downwardly-bearing frictional resistances offered by the weight, and in addition to that offered by the wire 9, with which the lowering of the weight causes the yarn to be drawn into contact.

When the loom is in operation, the drawing forward of the yarn causes the weights to assume a position approximating that shown at *c* and varying with the intermittent motion of the loom, but maintaining the tension constant.

In lieu of the opposite side parts of the weight being connected above the wire 6, they may be open above the wire and connected between the wires 6 and 5, (see Fig. 3,) in which case the wire 5 may serve both for preventing all swaying movement of the weight and also the falling thereof should the yarn break; or the duplex weight may be made

with an open top and without being slotted at the bottom so as to coact only with the wires 6 and 9. (See Fig. 4.)

I claim—

5 1. In combination with a bobbin-frame used in looms for weaving, a tension-regulating device formed with two separate downwardly-bearing frictional surfaces adapted to rest on the yarn, and an intermediate wire or frictional surface supported by the bobbin-frame and adapted to support the yarn, as herein set forth.

15 2. In combination with a bobbin-frame used in looms for weaving, a tension-regulating device formed with two separate downwardly-bearing frictional surfaces adapted to rest on the yarn, an intermediate wire or frictional surface supported by the bobbin-frame and adapted to support the yarn, and a guiding-wire 5, as herein set forth.

20 3. In combination with a bobbin-frame used in looms for weaving, a tension-regulating device formed with two separate downwardly-

bearing frictional surfaces adapted to rest on the yarn, an intermediate wire or frictional surface supported by the bobbin-frame and adapted to support the yarn, and an auxiliary supporting-wire 9, as herein set forth. 25

4. In combination with a bobbin-frame used in looms for weaving, a tension-regulating device formed with two separate downwardly-bearing frictional surfaces adapted to rest on the yarn, an intermediate wire or frictional surface supported by the bobbin-frame and adapted to support the yarn, a guiding-wire 5, and an auxiliary supporting-wire 9, as herein set forth. 30 35

In witness whereof I have hereunto set my hand in presence of two witnesses.

ARTHUR WHITTALL.

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